UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,956	02/22/2002	Anna Charny	CISCP729	1598

26541	7590	12/01/2004	EXAMINER

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ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/080,956	CHARNY ET AL.
	Examiner	Art Unit	
	Bryce P Bonzo	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2002*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

NON-FINAL REJECTION

Status of the Claims

Claims 1-25 are rejected under 35 USC §102.

Claims 9-16 are rejected under 35 USC §101.

Rejections under 35 USC §101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 9-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims recite a data structure per se (the computer program product). Applicant is required to explicitly claim the code operating or executing on a computer in order to overcome this rejection.

Rejections under 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claimed 1-25 are rejected under 35 U.S.C. 102(e) as being anticipate by Liu

(United States Patent No. 6,744,727 B2).

As per the claims:

1. A method for placing fast reroute backup tunnels between nodes of one or more

pairs of nodes of a network to satisfy a requested total bandwidth for fast reroute

backup tunnels between nodes of each said pair, said method comprising:

specifying a set of constraints on said backup tunnels (column 8, lines 32-43);

and

performing linear programming operations based on said set of constraints to find

said backup tunnels, wherein the requested total bandwidth between nodes of each

node pair may be divided among multiple backup tunnels (matrices are linear

operations: column 16, lines 50-51; column 13, lines 59-66).

2. The method of claim 1 wherein said set of constraints comprises:

for each said node including a first node and a second node (column 6, lines 40-

44);

a sum of backup tunnel bandwidths of backup tunnels exiting said first node

should equal a requested total bandwidth of tunnels for said node pair (column 11, lines

20-36);

a sum of backup tunnel bandwidths of backup tunnels entering said second node

should equal said requested total bandwidth of backup tunnels for said node pair

(column 8, lines 53-56).

3. The method of claim 2 wherein said set of constraints further comprises:

for any link in said network, a sum of bandwidths consumed on the link by said

backup tunnels does not exceed a backup bandwidth capacity of said link (column 13,

lines 5-14); and

for each node in said network other than nodes of said pairs, a sum of

bandwidths of backup tunnels entering such node should equal a sum of bandwidths of

backup tunnels exiting such node (column 8, lines 44-56).

4.   The method of claim 3 wherein performing linear programming operations

comprises:

employing an optimality function in addition to said set of constraints, said

optimality function comprising a sum of bandwidth used on all links of said network in

meeting said requested total bandwidth of each said node pair (column 8, lines 44-56).

5. The method of 1 wherein said linear programming operations are performed on a

network that does not include a protected node and links connected to said protected

node (Figure 1 does not show any protected nodes or associated links).

6. The method of claim 1 wherein said linear programming operations are performed on a network that does not include a protected link (Figure 1 does not show any protected links).

7. The method of claim 1 wherein performing linear programming operations comprises:

finding links employed in said backup tunnels using said set of constraints and a linear programming procedure (column 8, lines 27-33); and

identifying backup tunnels made up of said links column 13, lines 59-65).

8. The method of claim 5, wherein identifying backup tunnels made up of said links comprises:

establishing a subnetwork consisting of only links found by said linear programming procedure (column 14, lines 29-48);

identifying a shortest path between said first node and said second node through said subnetwork (column 15, lines 21-24);

identifying a link in said shortest path having a smallest remaining bandwidth (column 15, lines 20-32);

eliminating said link having said smallest remaining bandwidth from said subnetwork (column 15, lines 25-32);

reducing available bandwidth of links of said shortest path by bandwidth of said link having said smallest remaining bandwidth (column 15, lines 34-51); and

repeating establishing, identifying said shortest path, identifying said link in said

shortest path, eliminating, and reducing until no links remain in said subnetwork (column

15, lines 34-51).

Claims 9-16 are the computer program for identifying backup tunnels

embodiments of the method of claims 1-8 and are rejected accordingly.

Claims 17-24 are the apparatus for identifying backup tunnels embodiments of

the method of claims 1-8 and are rejected accordingly.

Claim 25 is the apparatus in means plus function form of the the method of
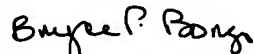
claims 1 is and is rejected accordingly.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Bryce P Bonzo whose telephone number is (571)272-

3655. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bryce P Bonzo
Examiner
Art Unit 2114